Fin Mkts Portfolio Mgmt (2007) 21: 397–398
DOI 10.1007/s11408-007-0057-3

BOOK REVIEW

# Philippe Jorion: Value at Risk – The New Benchmark for Managing Financial Risk

## 3rd Edition, ISBN 0-07-146495-6, McGraw–Hill, 2007, 602 pages, approx. 120 CHF (hardcover)

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Published online: 17 July 2007


Professor Jorion's book provides a comprehensive treatment of the concept of *Value at Risk*, tailored towards the needs of professionals and MBA students. Much emphasis is put on the implementation and use of *Value at Risk* in a risk management framework as well as the Basel regulations. The book also points the reader toward more advanced topics. The new sections outlining applications of extreme value theory, principal component analysis, copulas and the Basel II rule sets are very welcome additions to the previous editions.

The author has divided the treatment of *Value at Risk* into six parts, all building upon each other.

Part I provides an overview of markets and risk factors for financial institutions. The author takes a historical approach to motivate *Value at Risk* while highlighting several high profile failures and shortcomings of risk management. He also introduces the reader to the evolution of the Basel frameworks. The second and third parts make up the core pieces of the book.

Part II, "Building Blocks," provides the reader with techniques to estimate *Value at Risk*, including nonparametric and parametric methods. The emphasis thereby is always on application—something the target audience will know to appreciate. Professor Jorion also discusses estimation uncertainty and the need for backtesting obtained *Value at Risk* figures. Drawing from portfolio theory, the impact of correlation/diversification and the modeling of such are addressed. New to the third edition is a section on multivariate models. In particular, dimension reduction techniques such as factor models, principal components and copulas are also outlined.

The third part, called "Value-at-Risk Systems," focuses directly on the implementation of *Value at Risk* as part of risk management. Analytical, marginal and sim-

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ulation based implementations of *Value at Risk* measures are covered. The author presents the tradeoff between interpretability, computational speed and accuracy of implementations. Liquidity risk, along with an excursion into LTCM's failure are examined in a separate chapter. The chapter on the need for stresstesting *Value at Risk* under nonstandard shocks matches the chapter on backtesting in the estimation part of the book.

In the fourth part of the book, the author provides the reader with a discussion about the use of *Value at Risk*, as well as risk management systems for monitoring and decision making in general.

Part V contains chapters on credit, operational and integrated risk management formerly found in the second and third part of the second edition. The chapter on credit risk sketches both structural and reduced-form models. Yet its main focus is on measuring and managing credit risk once model parameters are obtained. The sections on risk management complete part IV and extend risk management decisions to the level of an institution as a whole.

The author concludes with limitations in the use of *Value at Risk* (technical limitations have already been presented in the estimation/implementation parts) and highlights the danger of taking *Value at Risk* as the sole foundation for risk measurement or decisions.

There are numerous business snapshots and sample calculations illustrating the theory covered throughout all the chapters. Several snapshots are reoccurring and are looked upon from different points of view in risk management. New to the third edition are chapter questions to which solutions are given on the author's homepage. The questions are suitable for recapitulating the corresponding chapter.

The uninitiated reader may find some concepts such as GARCH, bootstrap, extreme value theory, copulas or risk-neutral pricing presented in a rather brief manner. While appropriate for the target audience, curious readers may appreciate additional references in some sections.

Overall, the third edition has managed to provide an up-to-date and complete overview of *Value at Risk*, starting from estimation and application to regulation and overall risk management. Several recent research results are incorporated. I recommend it as either a textbook in a risk management course or as an opportunity to gain an extensive overview of the use of *Value at Risk*.